| RED LEDS |             |          |              |       | 7-SEGMENT DISPLAYS |           |                          |                  |                   |          |                                  |       |
|----------|-------------|----------|--------------|-------|--------------------|-----------|--------------------------|------------------|-------------------|----------|----------------------------------|-------|
|          | LEDR[0]     | PIN_AA24 | LED [0]      | 3.3 V | HEX0[0]            | PIN_W17   | Seven Segment Digit 0[0] | 3.3 V            | HEX3[0]           | PIN_Y19  | Seven Segment Digit 3[0]         | 3.3 V |
|          | LEDR[1]     | PIN_AB23 | LED [1]      | 3.3 V | HEX0[1]            | PIN_V18   | Seven Segment Digit 0[1] | 3.3 V            | HEX3[1]           | PIN_W19  | Seven Segment Digit 3[1]         | 3.3 V |
|          | LEDR[2]     | PIN_AC23 | LED [2]      | 3.3 V | HEX0[2]            | PIN_AG17  | Seven Segment Digit 0[2] | 3.3 V            | HEX3[2]           | PIN_AD19 | Seven Segment Digit 3[2]         | 3.3 V |
|          | LEDR[3]     | PIN_AD24 | LED [3]      | 3.3 V | HEX0[3]            | PIN_AG16  | Seven Segment Digit 0[3] | 3.3 V            | HEX3[3]           | PIN_AA20 | Seven Segment Digit 3[3]         | 3.3 V |
|          | LEDR[4]     | PIN_AG25 | LED [4]      | 3.3 V | HEX0[4]            | PIN_AH17  | Seven Segment Digit 0[4] | 3.3 V            | HEX3[4]           | PIN_AC20 | Seven Segment Digit 3[4]         | 3.3 V |
|          | LEDR[5]     | PIN_AF25 | LED [5]      | 3.3 V | HEX0[S]            | PIN_AG18  | Seven Segment Digit 0[5] | 3.3 V            | HEX3[5]           | PIN_AA19 | Seven Segment Digit 3[5]         | 3.3 V |
|          | LEDR[6]     | PIN_AE24 | LED [6]      | 3.3 V | HEX0[6]            | PIN_AH18  | Seven Segment Digit 0[6] | 3.3 V            | HEX3[6]           | PIN_AD20 | Seven Segment Digit 3[6]         | 3.3 V |
|          | LEDR[7]     | PIN_AF24 | LED [7]      | 3.3 V |                    |           |                          |                  |                   |          |                                  |       |
|          | LEDR[8]     | PIN_AB22 | LED [8]      | 3.3 V | HEX1[0]            | PIN_ AF16 | Seven Segment Digit 1[0] | 3.3 V            | HEX4[0]           | PIN_AD21 | Seven Segment Digit 4[0]         | 3.3 V |
|          | LEDR[9]     | PIN_AC22 | LED [9]      | 3.3 V | HEX1[1]            | PIN_V16   | Seven Segment Digit 1[1] | 3.3 V            | HEX4[1)           | PIN_AG22 | Seven Segment Digit 4[1]         | 3.3 V |
|          |             |          |              |       | HEX1[2]            | PIN_AE16  | Seven Segment Digit 1[2] | 3.3 V            | HEX4[2)           | PIN_AE22 | Seven Segment Digit 4[2]         | 3.3 V |
|          | VGA pinouts |          |              |       | HEX1[3]            | PIN_AD17  | Seven Segment Digit 1[3] | 3.3 V            | HEX4[3)           | PIN_AE23 | Seven Segment Digit 4[3]         | 3.3 V |
|          | VGA_R[0]    | PIN_AK29 | VGA Red[0]   | 3.3V  | HEX1[4]            | PIN_AE18  | Seven Segment Digit 1[4] | 3.3 V            | HEX4[4)           | PIN_AG23 | Seven Segment Digit 4[4]         | 3.3 V |
|          | VGA_R[1]    | PIN_AK28 | VGA Red[1]   | 3.3V  | HEX1[5]            | PIN_ AE17 | Seven Segment Digit 1[5] | 3.3 V            | HEX4[5)           | PIN_AF23 | Seven Segment Digit 4[5]         | 3.3 V |
|          | VGA_R[2]    | PIN_AK27 | VGA Red[2]   | 3.3V  | HEX1[6]            | PIN_V17   | Seven Segment Digit 1[6] | 3.3 V            | HEX4[6)           | PIN_AH22 | Seven Segment Digit 4[6]         | 3.3 V |
|          | VGA_R[3]    | PIN_AJ27 | VGA Red[3]   | 3.3V  |                    |           |                          |                  |                   |          |                                  |       |
|          | VGA_R[4]    | PIN_AH27 | VGA Red[4]   | 3.3V  | HEX2[0]            | PIN_ AA21 | Seven Segment Digit 2[0] | 3.3 V            | HEX5[O)           | PIN_AF21 | Seven Segment Digit 5[0]         | 3.3 V |
|          | VGA_R[5]    | PIN_AF26 | VGA Red[5]   | 3.3V  | HEX2[1]            | PIN_AB17  | Seven Segment Digit 2[1] | 3.3 V            | HEX5[1)           | PIN_AG21 | Seven Segment Digit 5[1]         | 3.3 V |
|          | VGA_R[6]    | PIN_AG26 | VGA Red[6]   | 3.3V  | HEX2[2]            | PIN_ AA18 | Seven Segment Digit 2[2] | 3.3 V            | HEX5[2)           | PIN_AF20 | Seven Segment Digit 5[2]         | 3.3 V |
|          | VGA_R[7]    | PIN_AJ26 | VGA Red[7]   | 3.3V  | HEX2[3]            | PIN_Y17   | Seven Segment Digit 2[3] | 3.3 V            | HEX5[3)           | PIN_AG20 | Seven Segment Digit 5[3]         | 3.3 V |
|          | VGA_G[0]    | PIN_AK26 | VGA Green[0] | 3.3V  | HEX2[4]            | PIN_Y18   | Seven Segment Digit 2[4] | 3.3 V            | HEX5[4)           | PIN_AE19 | Seven Segment Digit 5[4]         | 3.3 V |
|          | VGA_G[1]    | PIN_AJ25 | VGA Green[1] | 3.3V  | HEX2[5]            | PIN_ AF18 | Seven Segment Digit 2[5] | 3.3 V            | HEX5[5)           | PIN_AF19 | Seven Segment Digit 5[5]         | 3.3 V |
|          | VGA_G[2]    | PIN_AH25 | VGA Green[2] | 3.3V  | HEX2[6]            | PIN_W16   | Seven Segment Digit 2[6] | 3.3 V            | HEX5[6)           | PIN_AB21 | Seven Segment Digit 5[6]         | 3.3 V |
|          | VGA_G[3]    | PIN_AK24 | VGA Green[3] | 3.3V  |                    |           |                          |                  |                   |          |                                  |       |
|          | VGA_G[4]    | PIN_AJ24 | VGA Green[4] | 3.3V  | SLIDE SWITCHES     |           |                          |                  |                   |          |                                  |       |
|          | VGA_G[5]    | PIN_AH24 | VGA Green[5] | 3.3V  | SW[0]              | PIN_AB30  | Slide Switch[0]          | Depending on JP7 | PUSH BUTTONS      |          |                                  |       |
|          | VGA_G[6]    | PIN_AK23 | VGA Green[6] | 3.3V  | SW[1]              | PIN_Y27   | Slide Switch[1]          | Depending on JP7 | KEY[0]            | PIN_AJ4  | Push-button[0]                   | 3.3 V |
|          | VGA_G[7]    | PIN_AH23 | VGA Green[7] | 3.3V  | SW[2]              | PIN_AB28  | Slide Switch[2]          | Depending on JP7 | KEY[1]            | PIN_AK4  | Push-button[1]                   | 3.3 V |
|          | VGA_B[0]    | PIN_AJ21 | VGA Blue[0]  | 3.3V  | SW[3]              | PIN_AC30  | Slide Switch[3]          | Depending on JP7 | KEY[2]            | PIN_AA14 | Push-button[2]                   | 3.3 V |
|          | VGA_B[1]    | PIN_AJ20 | VGA Blue[1]  | 3.3V  | SW[4]              | PIN_W25   | Slide Switch[4]          | Depending on JP7 | KEY[3]            | PIN_AA15 | Push-button[3]                   | 3.3 V |
|          | VGA_B[2]    | PIN_AH20 | VGA Blue[2]  | 3.3V  | SW[5]              | PIN_V25   | Slide Switch[5]          | Depending on JP7 |                   |          |                                  |       |
|          | VGA_B[3]    | PIN_AJ19 | VGA Blue[3]  | 3.3V  | SW[6]              | PIN_AC28  | Slide Switch[6]          | Depending on JP7 | PS2 keyboard      |          |                                  |       |
|          | VGA_B[4]    | PIN_AH19 | VGA Blue[4]  | 3.3V  | SW[7]              | PIN_AD30  | Slide Switch[7]          | Depending on JP7 | PS2_CLK           | PIN_AB25 | PS/2 Clock                       | 3.3V  |
|          | VGA_B[5]    | PIN_AJ17 | VGA Blue[5]  | 3.3V  | SW[8]              | PIN_AC29  | Slide Switch[8]          | Depending on JP7 | PS2_DAT           | PIN_AA25 | PS/2 Data                        | 3.3V  |
|          | VGA_B[6]    | PIN_AJ16 | VGA Blue[6]  | 3.3V  | SW[9]              | PIN_AA30  | Slide Switch[9]          | Depending on JP7 | PS2_CLK2          | PIN_AC25 | PS/2 Clock                       | 3.3V  |
|          | VGA_B[7]    | PIN_AK16 | VGA Blue[7]  | 3.3V  |                    |           |                          |                  | PS2_DAT2          | PIN_AB26 | PS/2 Data                        | 3.3V  |
|          | VGA_CLK     | PIN_AK21 | VGA Clock    | 3.3V  | System Clocks      |           |                          |                  |                   |          |                                  |       |
|          | VGA_BLANK_N | PIN_AK22 | VGA BLANK    | 3.3V  | CLOCK_50           | PIN_AF14  | 50 MHz Clock Input       | 3.3 V            | LCD Module        |          |                                  |       |
|          | VGA_HS      | PIN_AK19 | VGA H_SYNC   | 3.3V  | CLOCK2_50          | PIN_AA16  | 50 MHz Clock Input       | 3.3 V            | HPS_LCM_D_C       | PIN_C18  | HPS LCM Data bit is Data/Command |       |
|          | VGA_VS      | PIN_AK18 | VGA V_SYNC   | 3.3V  | CLOCK3_50          | PIN_Y26   | 50 MHz Clock Input       | 3.3 V            | HPS_LCM_RST_N     | PIN_E17  | HPS LCM Reset                    |       |
|          | VGA_SYNC_N  | PIN_AJ22 | VGA SYNC     | 3.3V  | CLOCK4_50          | PIN_K14   | 50 MHz Clock Input       | 3.3 V            | HPS_LCM_SPIM_CLK  | PIN_A23  | SPI Clock                        |       |
|          |             |          |              |       | HPS_CLOCK1_25      | PIN_D25   | 25 MHz Clock Input       | 3.3 V            | HPS_LCM_SPIM_MOSI | PIN_C22  | SPI Master Output/ Slave Input   |       |
|          |             |          |              |       | HPS_CLOCK2_25      | PIN_F25   | 25 MHz Clock Input       | 3.3 V            | HPS_LCM_SPIM_SS   | PIN_H20  | SPI Slave select                 |       |
|          |             |          |              |       |                    |           |                          |                  |                   |          |                                  |       |

HPS - Hard Processor System LCM - liquid crystal module SPIM -